# Gaylord and Dorothy Donnelley Foundation Grant

Accessing the Historic Aerial Photography of South Carolina's Low Country from the 1930's through the 1980's

Updated September 28, 2017

## Goals of the Project

- Scan and geographically rectify the aerial photography collections of the University of South Carolina's Thomas Cooper Library's Map Collection
- Provide access files to both Google and ESRI
  - Google files would be accessible through Google Maps/Earth
  - ESRI files would be accessible for researchers
- Files also available through South Carolina Digital Library (SCDL)
- Photos will be moved to remote storage for long-term preservation

## South Carolina's Low Country Counties

- Beaufort (1532); Berkeley (2,732); Charleston (6592); Colleton (5,259);
   Georgetown (2,782); Horry (3571); Jasper (1927)
- Total (24,086 images)
- +1,485 images from College of Charleston collection

## Donnelley Project, part 2

- Original project completed July 2016 (on time)
- \$65,000 under budget
- Request to re-program funds submitted April 2016; granted July 2016
- Project expanded to include: Hampton, Dorchester, Williamsburg, Marion, and Florence counties
- Funding to include College of Charleston collection
- Purchase of 48 terabyte server

## College of Charleston Transfer

- April 2014 College of Charleston Transferred its collection of aerial photography to the University of South Carolina Libraries
- Received 3147 images of which 1485 were not held at South Carolina (47.19%) nonduplicate rate
- Images added: Beaufort (422); Berkeley (167); Charleston (123);
   Colleton (30); Georgetown (184); Horry (252); Jasper (291)
- Scanning completed July 2016
- Geo-rectification started Fall 2016

## Chester Project

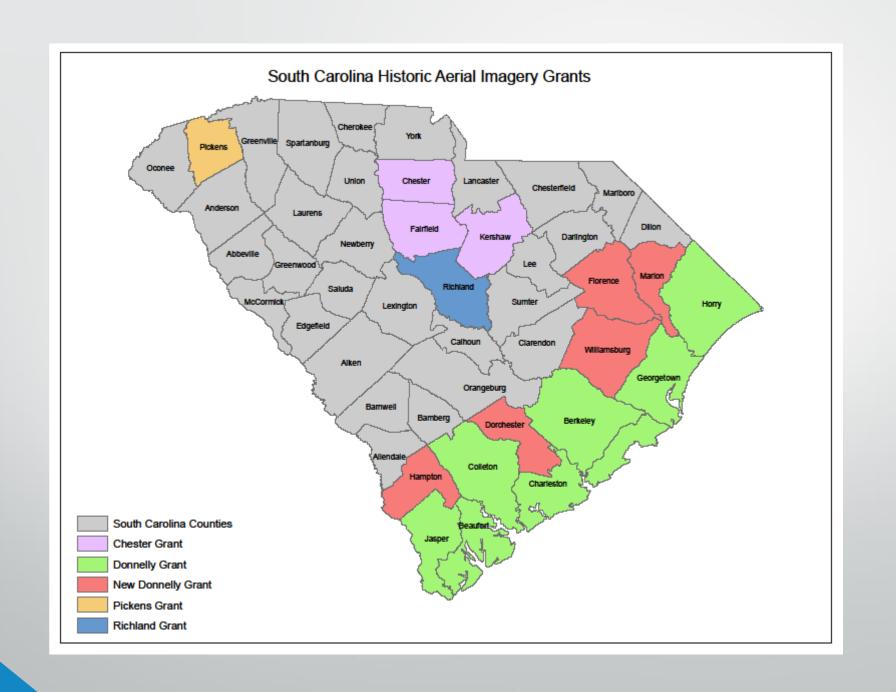
- Counties of Chester, Fairfield, and Kershaw
- Scanning started in August 2014; completed December 2015
- Geo-referencing started Spring 2015
- Chester 1949, 1964/65, 1979, 1981
- Fairfield (completed June 2017)
- Kershaw (completed September 2017)

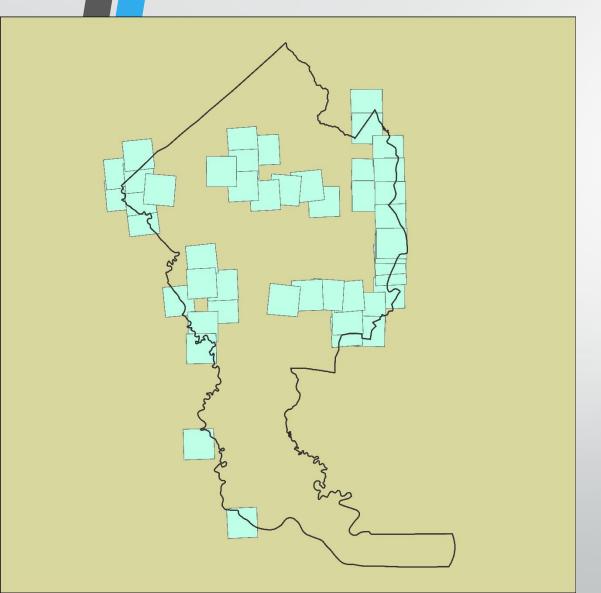
## Richland County – SC FLOODS Project

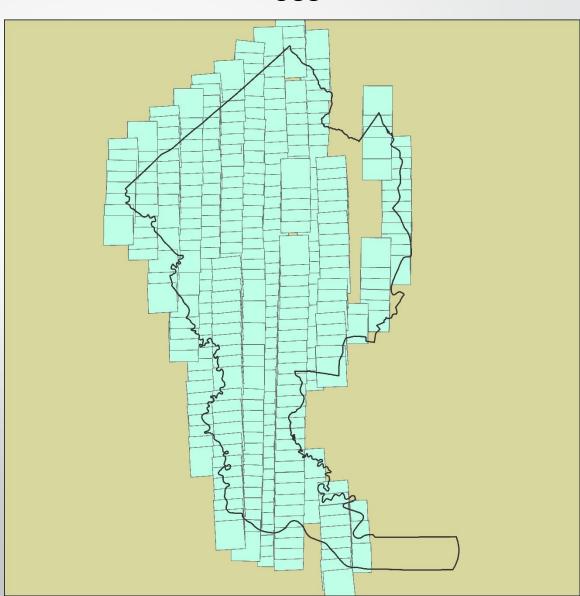
- Internal Grant awarded by the Office of VP for Research
- \$15,070 to scan and geo-rectify the aerial photography collection of Richland County, South Carolina
- Project timeline November 2, 2015-August 31, 2016
- Co-PIs Kate Boyd and Ashley Knox
- SCFLOODS Conference October 7, 2016 Columbia Convention Center
  - Re-scheduled to November 18, 2016 (Hurricane Matthew)
- Completed December 16, 2016

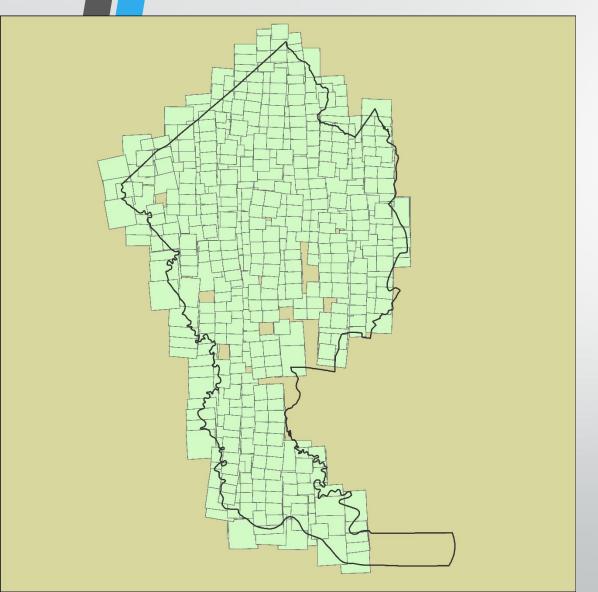
## Felburn Foundation

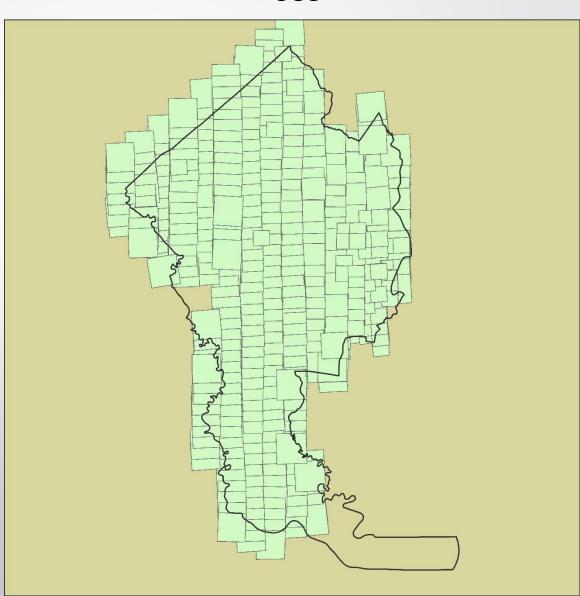
- Application in July 2016 to scan and geo-rectify Pickens and Oconee Counties
- September 2016 awarded \$ 10,000 to do Pickens County
- Scanning began in May 2017
- Geo-rectification scheduled for January 2018

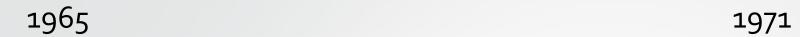


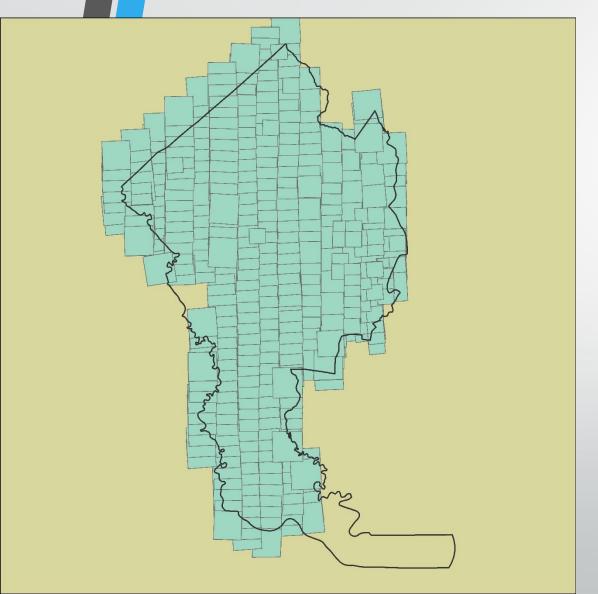


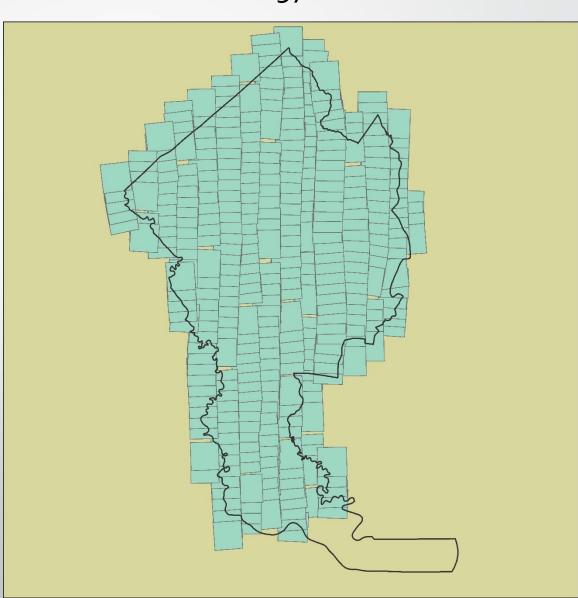






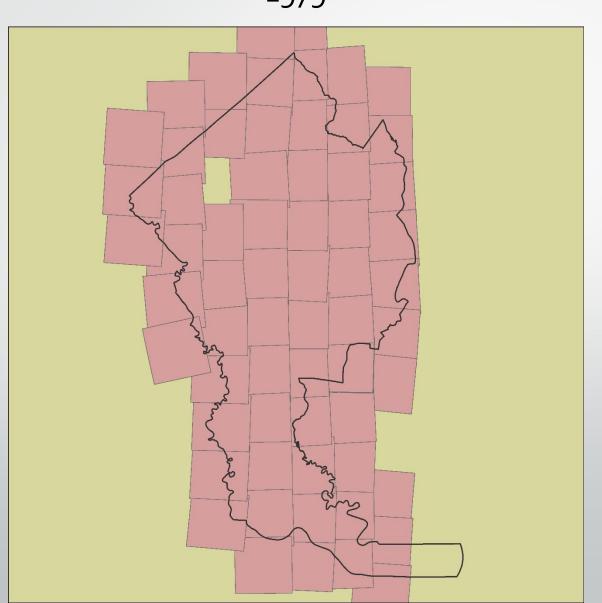






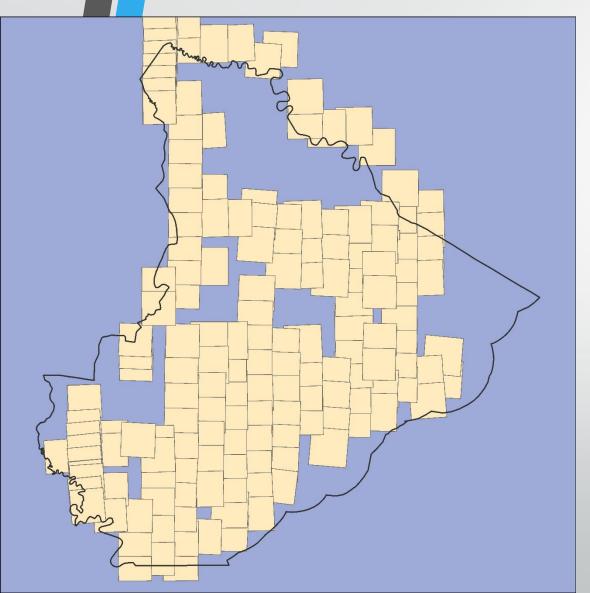
## Jasper County

1979

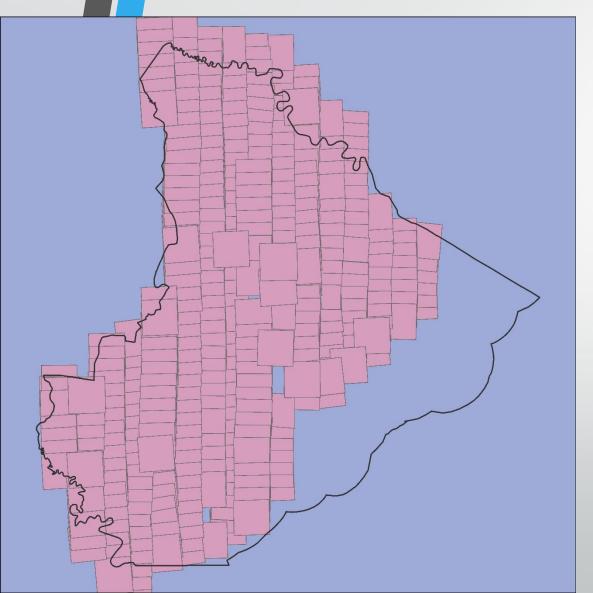


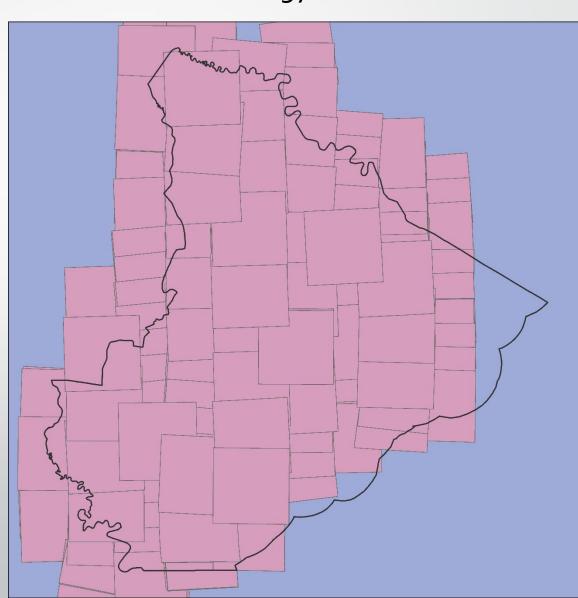






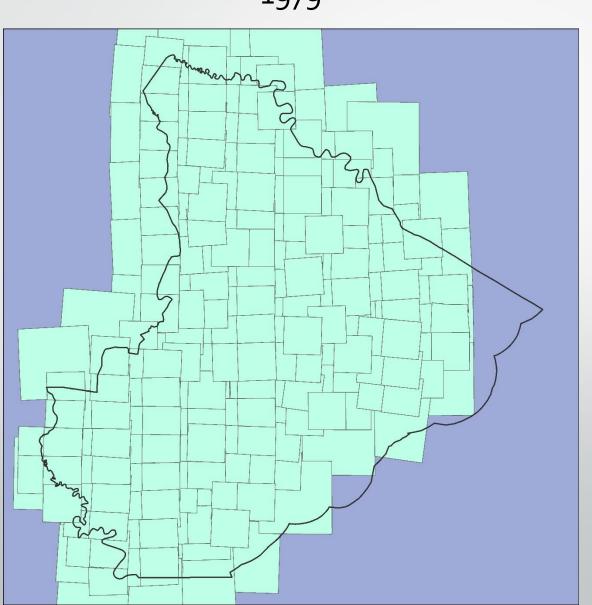


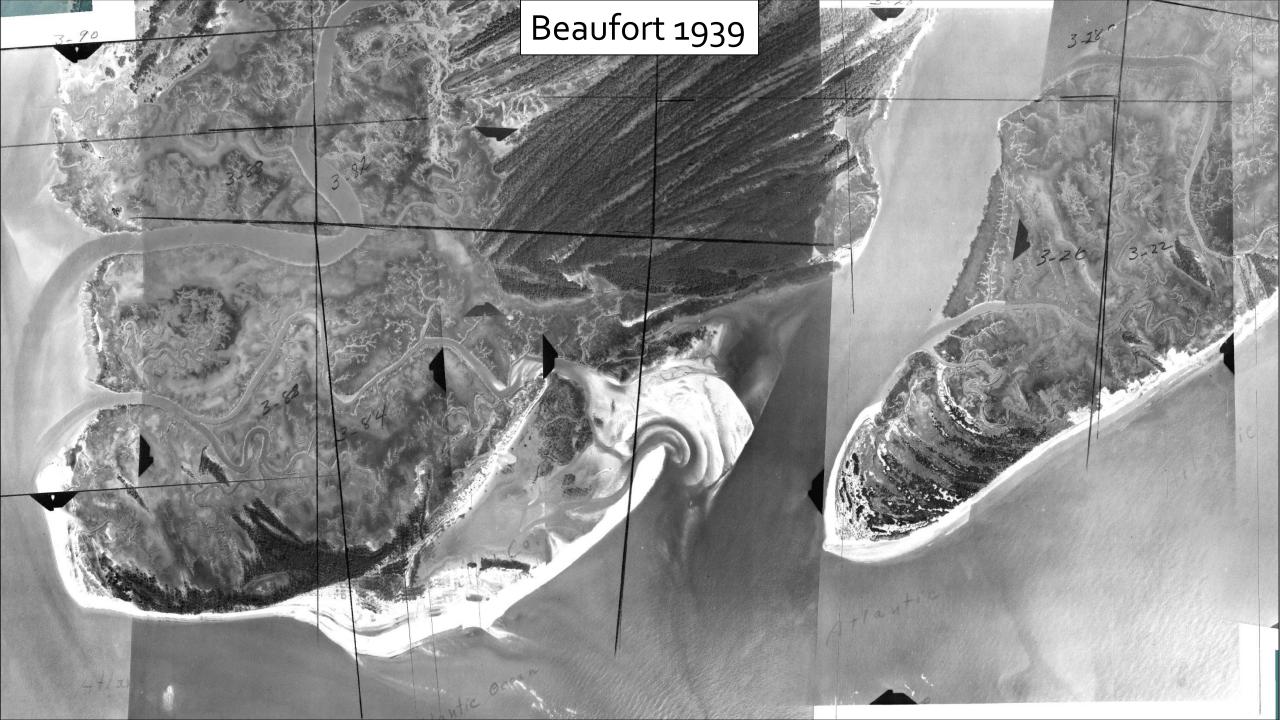




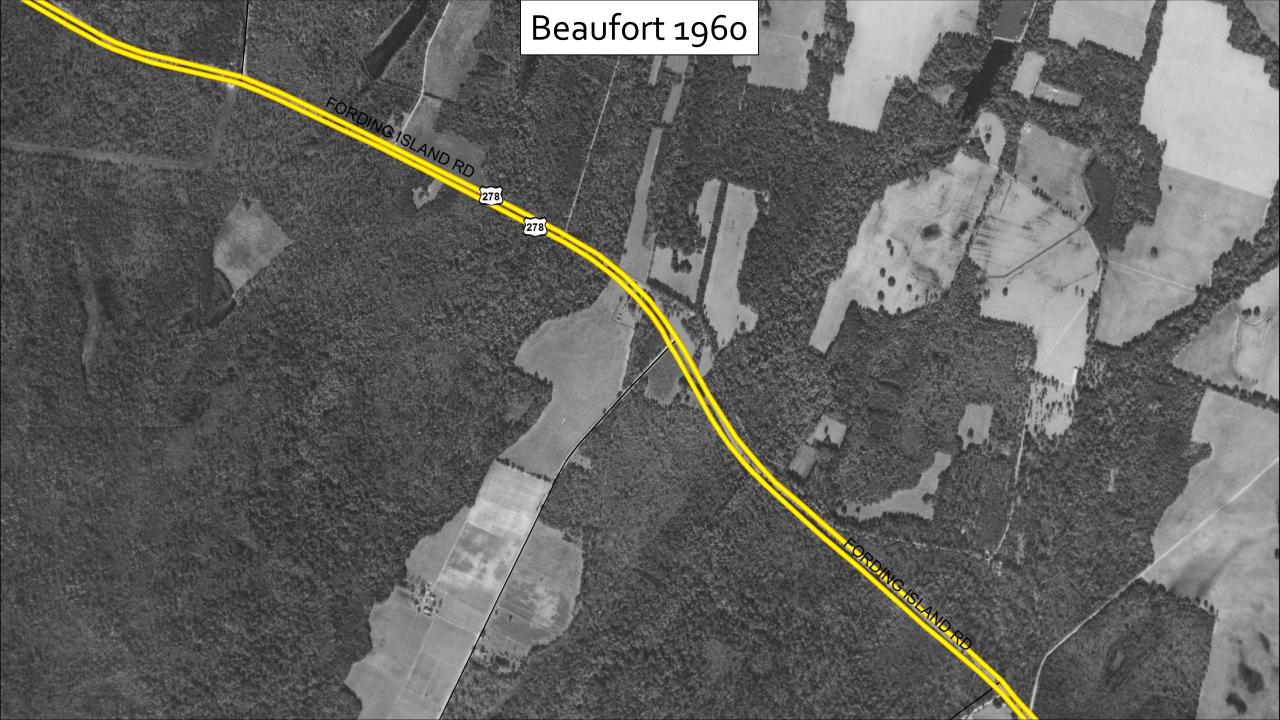
## **Beaufort County**

1979









# Accomplishments to date

County	Total Images	Rectified	Percent
Beaufort	1,532	1,532	100.00
Berkeley	2,732	2,732	100.00
Charleston	6,592	6,592	100.00
Colleton	5,257	5,257	100.00
Georgetown	2,475	2,475	100.00
Horry	3,571	3,571	100.00
Jasper	1,927	1,927	100.00
TOTAL	24,086	24,086	100.00

## Cost per Image

Date	Hours	Images Rectified	Images per hour	Cost per Image (\$)
Spring 2014 (March-June)	1293.75	3604	2.79	3.59
Fall 2014 (July-December)	1603.75	5585	3.48	2.87
Spring 2015 (January-June)	1212.75	3250	2.68	3.73
Fall 2015 (July-December)	1756.5	7329	4.17	2.40
Spring 2016 (January-June)	705	3152	4-47	2.24
Fall 2016 (July-December)	151.25	1136	7.51	1.33
To date	6723	24,056	3.58	2.79

# All Projects – Cost Tracking

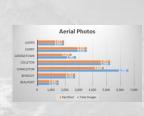
Project	Hours	Images	lmages/hour	Cost/Image
Donnelley (pt. 1)	6723	24056	3.58	2.79
Chester (through 9/21/2017)	2687	6748	2.51	3.98
Richland/SC FLOODS	1643	3980	2.42	4.13
Total				

### Digitization of Historic Aerial Photos of the South Carolina Lowcountry

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#### Gaylord and Dorothy Donnelley Foundation

- · Sponsored a grant to the USC Libraries in July 2013
- · Geo-rectification of historic aerial imagery of the SC Lowcountry
- · Grant encompasses seven counties or 24,000 images.
- · Additional grants for Kershaw, Chester, and Fairfield counties.
- · November 2015, new grant for Richland County.





Topographic change over time

Lending Institutions

Phase I assessments

Surveying property

#### Capabilities and Targeted Users

#### o Real-estate

- Evaluating property boundaries • Urban development
- Building assessments
- Costal building projects
- o Historians & Researchers
- Measure research areas
- Evaluate historical landmarks



o Archeology

#### Geo-rectification

#### o Rectification Process

- Load Aerial images
- Register geo-coordinates
- Rectify geo-coordinated images

#### o Rectification problems

- Recalculate histogram
- · Aerial image quality
- ArcMap crashing











### Processing

#### o Step 1

- Convert 16 bit to 8 bit
- RGB and Single Band conversion

#### o Step 2

- Tile images using MapTiler
- Edit newly created HTML file

#### o Step 3

- JSON dictionary for each County year
- Combine dictionaries into one .js file



• Web Sources: http://library.sc.edu/aerialphotos/



Pending Projects

o Metadata

 User will create their own area of interest

• RMSE information easily accessible

Date and time of rectification

User created buffer zones





# Web Page

http://library.sc.edu/aerialphotos

# Student Accomplishments Post Graduation Employment

- Three original students employed in GIS positions after graduation
  - Mark Bisset (May 2015) Mid-Carolina Electrical Co-op
  - Angel Pitts (May 2015)-Milliken Forestry
  - Daniel Radich (December 2015) <u>ESRI</u>Systems Analyst Charlotte
  - Terrance Randolph (December 2016) <u>Leidos</u> (FL)

# Student Accomplishments Graduate School

- Kylie Tokar University of Maryland
  - Masters of Professional Studies in Geospatial Information Sciences

## Student Accomplishments

- Internships for course credit
  - Spring 2015 Allan (Honors College) and Porter (Geography)
  - Fall 2015 Randolph and Tokar (Geography)
  - Spring 2016 Shifflett and Young (Geography)

# Student Accomplishments – External Internships

- ESRI summer internship (Radich 2015)
- SCANA summer internship (Randolph-2015)
- SCDOT summer internship (Tokar 2016)
- Hazen and Sawyer (Shifflett 2017)
- Central Carolina Alliance (Vaughan 2017)
- (LeBron -2017)

## **Contact Information**

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